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WHEN, HOW MUCH, AND TO WHOM SHOULD HOME ECONOMICS BE TAUGHT?[1]

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Formerly there was one type of organization for the twelve-year course of the public school, viz., the elementary grades from the first to the eighth, and the high school from the ninth to the twelfth. Within the past few years this division has, in many schools, changed. Because of a better understanding of the mental processes and abilities of boys and girls a number of educators have thought it best to place the division between the elementary and high school course at an earlier date. The junior high school has come into being as a result of this idea. Hence, in many schools, there are the elementary grades, and the junior and senior high schools. This is often called the 6-3-3 plan. Though this plan of division has not been adopted everywhere, it is becoming more and more popular, and we will base our discussion upon problems arising from such an organization.

The first questions to be considered are:

Should home economics be given in the elementary grades, i.e., in grades one to six, where the interests and activities of the child are largely those of play? Would a course offered in these years justify the efforts of the pupils and teacher?

[1] Presented at the meeting of the American Home Economics Association in connection with the Division of Superintendence, N. E. A., Chicago, February, 1919. This paper was the introduction to a Round Table discussion on its topic. It was therefore prepared to raise questions for discussion, not to give the writer's opinion.

If home economics is offered in the fifth and sixth years, which subject,—food or clothing—should be given first? Are the larger movements of cooking better adapted to the ability of the younger child than the smaller motions of sewing?

The plan of adapting school work to the needs of children in particular conditions or communities is one of the general accepted principles of modern education. Is there in the elementary grades any special type of pupil who needs a course in home economics even though the subject is not offered generally to all elementary pupils? In foreign districts where many pupils are over age, would a course in home economics be advisable?

The expense of equipping schools for household arts must be taken into consideration. If home economics is to be offered in the junior and senior high schools, does the expense of equipment preclude the teaching of the subject in grades below the seventh?

Is compulsory work in home economics generally advisable? If so, in what grades should it form a part of every child's education? Is the junior high school the place for such a procedure?

The abnormal conditions existing in the industrial world during the past year or two have affected the boy and girl of wage-earning years, and there have been many high school girls and boys lured into industry. In certain schools courses in homemaking have not been as popular, among the senior high school girls, as commercial courses, and the question arises whether the demands of the business world have made homemaking activities less appealing to the girl?

In analyzing this condition, it is possible that we need to take into consideration a factor other than industrial pressure. In some localities, the establishment of the junior high school and this country's participation in the war took place in the same period. It may be that the junior high school—and not changed industrial conditions—has affected the home economics course of the senior high school. To make the latter consideration specific: Will a well-rounded course in home economics in the junior high school affect the number of pupils electing work in the senior high school? Will the pupils feel that the junior high school gives them sufficient work in this subject?

It is a fact that a greater number of pupils will be reached by placing home economics courses in the junior rather than in the senior high school. Since it is a subject of great importance in the life of all girls and since it fills an important place in democratic education, the matter

of reaching the greatest numbers should be a consideration well worth regarding. On the other hand, certain distinct advantages might be gained by placing home economics in the senior high school, particularly in the eleventh and twelfth grades. By the time the pupil is a junior or a senior, she will have studied certain of the sciences which aid in elucidating home economics and which make it possible to present certain phases of household arts as applied science. Because of the more mature ability of the eleventh and twelfth grade pupil, she would be able to comprehend more fully the intricate social and economic problems pertaining to the home.

One of the serious problems of secondary education is to hold pupils in school until their prescribed course has been completed. All earnest educators are considering this question seriously. Can the home economics course do anything to solve this problem? If so, what is the best arrangement of work?

These questions might be considered:

Since home economics, especially food study and garment-making, is an attractive subject to most girls, will the placing of household arts in the junior high tend to hold the girls in school during the period when they are so apt to leave it?

On the other hand, if these subjects are placed in the senior high school, will the anticipation of an interesting activity and study hold the girl in school?

In former days very much was said about logical courses of study, logical development of a subject, and the logical methods of education. For the *elementary and secondary* school many educators are believing that logical methods should be supplanted by the psychological. In his "Democracy and Education" Dewey explains the difference in the two methods. He says: "The chronological method which begins with the experience of the learner and develops from that the proper modes of scientific treatment is often called the 'psychological' method in distinction from the logical method of the expert or specialist. The apparent loss of time involved is more than made up by the superior understanding and vital interest secured. What the pupil learns he at least understands."

In discussing when home economics should be offered to pupils or where it should be placed in a course of study, it may be well to consider the relative positions of home economics and related sciences in a curriculum,—to consider whether the logical or psychological plan should

be followed in arranging these subjects. Are we to say that logically certain sciences, especially chemistry and physics, should precede all food study? Since it would without doubt be unwise to offer chemistry to the elementary pupil or even to the girl in the junior high school, by this plan no food study could be given to a girl until she was somewhat advanced in school work. Would it be well then, to eliminate instruction in processes of cooking from the elementary school and the junior high school?

On the other hand, if food study were offered without chemistry and physics as prerequisites, might not instruction in processes of cooking serve as an effective background on which interest in chemistry could be aroused? If the pupil finds, for example, that she can make more tasty and better appearing apple sauce in a granite rather than an iron pan in the food class, would the study of the action of certain acids on metals simply be a continuation of her experience? It would seem that by one plan, certain phases of home economics might be taught as applied science; by the other, an effective background on which to base a study (usually less interesting to the average pupil) might be established. May not home economics be an aid to science as well as science to home economics?

In discussing the question of how much home economics should be offered in a public school course, the following questions may well be considered:

What should be the minimum and maximum number of periods per week devoted to household arts in the elementary school and in the junior and senior high schools?

One of the most insistent ideas of modern educators is that the pupil should be taught not merely to get him ready to live, but that he be taught to live. It is thought the processes of present growth will afford the best training for future needs. If the high school girl is living in her home, is she in immediate need of such training as will help her contribute her share to the workings of her home?

What are the demands of the household upon the girl that she may *live* in her home? It may be that one of her duties is to wash dishes, or set the table, or help in the cooking of foods, or aid in the serving of meals, or spend her allowance wisely. Is she then greatly in need of training for these activities? Will instruction in manipulative processes of homekeeping tend to make her a more successful member of her household? Will instruction in the selection of materials and the spending of money prepare her for more "worthy home membership?"

If one of the aims of home economics work is that it should function in the home, it would seem that the public school could do much to realize its aim by planning for the performance of household activities in the home. The question then arises, how many hours of home work or how many home projects should be required of pupils? Would a minimum of two hours per week or a maximum of eight hours be a wise requirement? It has been the custom in many schools to require home work of pupils in the so-called academic studies. Would it be well so to arrange pupils' programs that home work be required in home economics, but not in academic studies? Time for the preparation in school of the latter subjects would, of course, be arranged.

To whom shall home economics be taught? The subject has always been considered as belonging primarily to girls, and the girl does have a special need which should be supplied by such work. But does not the boy need home economics or at least certain phases of it? When the school boy and the business man are observed during the selection of their lunches, it is most evident that both need to be taught something of food values, food composition, and combination. The average boy selects his food with little thought other than that of flavor.

Since the budget is so closely related to successful home life, it would seem that not only women but men, not only girls but boys need to become interested in wise expenditure of the income. Is this phase of home economics one of the needs of the school boy?

It is generally conceded that the woman of the household bears a great responsibility in creating and maintaining the atmosphere of home life,—the home life that affords an opportunity for the individual expression of each member of the family. Does the man of a household share in this responsibility? If so, is it possible to teach him the art of homemaking? Is it possible even to teach the girl the art of homemaking? The following is another's opinion regarding this matter:[2]

"The home making process is profoundly affected by a broad range of human relationships and contacts with the outside world. In consequence the individuality of a person's home is in direct proportion to the richness and variety of these outside influences. . . . The satisfying qualities of home depend rather upon the ability of members of the household to coöperate in an enjoyable and harmonious use of their free time. The school can do much to further the development

[2] Alice C. Boughton in "Cleveland Education Survey, Household Arts and School Lunches."

of such ability in every individual, but the school cannot accomplish it alone. This eliminates education for homemaking as a separate school problem and a distinct school subject."

According to this idea, it is impossible to teach the indefinable art of home making to either boys or girls. Whether or not we accept this opinion it is unquestionably true that the study of many phases of home economics will be valuable to the boy and aid in his own personal development of the art of homemaking.

The matter of housing in our cities and towns was a serious problem during the war. Funds and workers were not available for building houses fast enough to supply the demands of our population. At the present time, the number of houses is still inadequate and doubtless will be until it is possible for the money market to supply sufficient funds for the construction of homes. An understanding of the maintenance of proper sanitary conditions in a home by the householder as well as the housekeeper would doubtless be especially valuable during the period of dwelling shortage.

If it is deemed wise to offer home economics to boys, should the same type of course be given them as is offered to girls? Should a home economics course for boys embrace administrative, economic, and sociologic problems rather than manipulative processes?

Most persons interested in modern education have believed that a wise (i.e. sane, not strained) correlation of our so-called academic and industrial or technical studies is desirable. Teaching problems in mathematics which involve data secured from home activities and whose solution furnishes valuable information regarding household management; using home problems for themes in the English class; making applications in chemistry and physics which elucidate processes in the administration of a home,—these are all valuable practices in education. But teaching of this kind involves work not only for the home economics teacher, but for teachers of mathematics, English, and science. If the mathematics teacher is to do effective teaching in applied problems in home economics, he must understand something of home economics; if the chemistry teacher is to make applications in chemistry which involve matters of the girl's interest and experience, he must also understand something of home economics.

If the courses offered in our public schools to all girls are to center about phases of homemaking, does it not seem necessary that all teachers of the elementary and secondary girl should have at least a general

survey of household arts? For the teaching of such subjects as chemistry, or other sciences, and art, should not teachers have specific training in certain phases of home economics?

If in the school of tomorrow, all pupils,—both boys and girls—are given some training in the economics of the home, all our teachers of the future will have something of a household arts background, and the need of teachers of subjects other than household arts for training in this subject will then be satisfied.

TEXTILE LESSONS FOR HOMEMAKERS

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A series of lessons on purchasing fabrics and household textiles was recently given a group of housekeepers through the services of the Home Economics department of the University of Washington.

The choice of subjects was made by the women of the group from the following list suggested by the teacher:—sheeting, towelling, blankets, apron goods, dress fabrics, materials for underwear, materials for juvenile play clothes, trimming for underwear, wool dress goods, and the following ready made garments: house dresses, muslin underwear, lingerie waists, girls' middies, children's rompers, hosiery, and boys' suits. The list includes purchases typical of the average household.

The women of this group were most deeply interested in learning how to choose towelling, blankets, and dress goods.

The lessons were conducted as follows.

I. HOW TO JUDGE TOWELLING

Fifteen 1 yard lengths of towelling (suitable for tea towels and hand towels or face towels) were bought at a local store. Each piece was labelled with the current price and a number. The range in quality represented those grades most frequently sold in the store.

Each woman was given a copy of the accompanying score card[1] and an opportunity to examine the samples. With no explanation as to the relative merits of the towelling or the composition of each piece, the

[1] See page 245.

women were asked to put down estimates of each towel in the column corresponding to the number on that towel. Two score cards were filled; one for tea towels and one for face or hand towels. (Bath towels were considered incidentally in this lesson.) Since many women use flour or sugar sacks for tea towels, samples of these with prices and also the unbleached muslin sold for this purpose were included.

The four headings given on the score card are usually conceded most important in the selection of towelling. The points under each are merely explanatory, as "appearance" is determined by color, weave, and design (as in case of fancy huck).

In weighting the four points it is assumed that the majority of housekeepers are limited first as to cost. The scoring on this point is a personal matter, depending upon what is "expensive" or "reasonable" for the individual.

After the samples had been judged, the teacher held up one sample at a time calling its number and asking for the total points or "score" given that piece by each member of the group. There was sufficient variation to cause keen interest and discussion. When the women began to ask which pieces were all linen, and how the teacher thought they should be rated, she explained the simple tests for distinguishing cotton from linen. A general discussion followed as to good and bad points of the samples, including the relative amounts of sizing, color of stripe, wearing and laundering qualities.

In the course of the discussion, all information necessary in the choice of towelling was given. It led to the source of flax, reasons for the present shortage, and continued high prices, explanation of the discrepencies in prices on current stock, possibilities for flax manufacture in the Pacific Northwest, a statement concerning the successful growing of fiber flax in Washington and Oregon, and, finally, suggestions for conserving linens on hand.

Doubtless the success of the lesson was due largely to the fact that these housekeepers were approached as experienced buyers who already had practical knowledge of materials. The method used stimulated their interest and made their minds receptive to the information which seemed to grow out of these towels which they held in their hands. A lecture on flax growing, linen manufacture, and the state of the world markets, might not have made connection with their kitchen towels or helped them in the least to *purchase* towelling.

The fact that these towels were to be had in a local store at the prices quoted added reality to the class exercise. It happened that one store was unusually well stocked with towelling of all grades. No difficulty was experienced in showing goods from a particular store, since in the series of lessons, articles or fabrics were borrowed or purchased for the class from all the stores.

II. HOW TO JUDGE BLANKETS

Nine blankets of average grade were borrowed from department stores. They were labelled with numbers from one to nine. Each woman was given a copy of the accompanying score card[2] and an opportunity to examine the blankets. She recorded her estimate of each blanket in the column corresponding to the number on the blanket. Cost was put at thirty points because this article is purchased less frequently than towelling, and expense is sometimes disregarded in the effort to procure "warmth" and "durability." "Warmth" is determined by the composition of the blanket and the arrangement of the fibers, i.e., a highly napped blanket includes more air spaces than a comparatively smooth one. "Durability" depends upon the strength of yarns, closeness of the weave, and character of the nap. A fluffy cotton blanket, for example, will not remain "fluffy" long and a highly napped part wool blanket will lose much of its wool from the surface.

As in the case of towelling, estimates differed. One woman might be willing to pay $15.00 for a blanket and could give the full score to "cost," while another would have to choose a cheaper grade and would lower the score on "cost" for the $15.00 blanket.

When all the scores were compared, the teacher took up one blanket after another and pointed out features which had been overlooked by the women. For example, many blankets were plainly labelled by the manufacturer as "all pure cotton," "wool nap," "warranted pure fleece wool," and one said "guaranteed pure wool," and "no admixture of shoddy, wastes, or noils." Sizes were compared, bits of nap were pulled off and burned to show the character of the fibers. Yarns were examined, weights of blankets compared, and finally comments made on washing and dry cleaning of different types.

These housekeepers went home to examine their own blankets in the light of what they had learned and to think more intelligently about future purchases.

[2] See page 245.

III. HOW TO JUDGE DRESS FABRICS

The lesson on dress goods included three kinds: cotton goods for house dresses, wool dress goods, and summer dress fabrics.

The women had become familiar with the use of score cards and were able to place estimates on all the samples in the time allowed. The score cards differed according to the factors involved in the choice of each type of fabric; for example, the chief consideration in purchasing cotton goods for house dresses is the laundering quality.

Seven samples were shown for house dresses, including ginghams, percales, and crepes; ten of wool goods; twelve of summer dress fabrics. This lesson was the most popular of the series partly because of the aesthetic appeal.

The same method was used as in former lessons. Points not included in the score cards were brought out, as becomingness of certain color and textures to types of complexion, age, and height; ease in handling certain fabrics above others; calculation for cutting napped fabrics and plaids; methods of washing colored cottons. The use of the score card in this sense is limited to fabrics or garments for one purpose. It may be employed only as a means of stimulating thought and encouraging the use of judgment in choice.

This series of lessons has given a miniature shopping experience which is our purpose in all textile teaching.

Kinds of toweling shown, with prices

NUMBER	KIND	COMPOSITION	WIDTH	PRICE
			inches	
1	Glass	Linen	20	$0.50
2	Glass	Cotton	16½	.25
3	Crash	Cotton (blue stripe)	16½	.28
4	Crash	Linen	15½	.30
5	Birdseye	Cotton (sized)	16½	.25
6	Glass	Linen (loose)	16½	.30
7	Twill	Cotton (heavily sized)	14	.15
8	Unbleached muslin	Cotton	36	.20
9	Unbleached muslin	Cotton	36	.25
10	Huck	Linen	16½	.60
11	Huck (figured)	Cotton	15½	.29
12	Crash	Linen (half bleached)	16½	.40
13	Crash (Stevens)	Linen (half bleached)	16	.35
14	Crash (brown)	Cotton, some tow and jute	16	.18
15	Huck (figured)	Mercerized cotton	17½	.65

Sugar and flour sacks, 1 yard square, 75 cents per dozen.

Score cards[3]

Towelling		Blankets	
Cost	40	Cost	30
Width		Size	
Absorbing qualities	30	Warmth	35
Weave		Wool	
Composition		Wool and cotton	
Linen		Cotton	
Union		Character of nap	
Cotton		Durability	20
Durability	25	Strength of yarns	
Twist of yarn		Closeness of weave	
Closeness of weave		Character of nap	
Appearance	5	Appearance	5
Color		Color	
Weave		Ease in Cleansing	10
Design		Total	100
(As in huck)			
Total	100		

Cotton dress goods for house dresses		*Summer dress goods*		*Wool dress goods*	
Cost	35	Cost	35	Cost	30
Width		Width		Width	
Laundering quality	45	Beauty	35	Cost of upkeep	
Permanence of dye		Color		Dry cleaning	
Durability of cloth		Design or pattern		Beauty or aesthetic quality	30
Shrinkage		Texture		Texture (surface effect)	
Ease in washing		Durability	30	Design or pattern	
Ease in ironing		Will it pull apart or rough up?		Weave or kind of plaid	
Appearance after laundering		Will it wrinkle badly?		Durability	40
Beauty	20	Will it soil easily?		Wearing quality	
Color		Will it clean easily?		Ability to look well after continued wear	
Design		Total	100	Total	100
Total	100				

List of blankets shown, with prices in March, 1919

Light weight all wool plaid	$15.00
Cotton and wool mixed	10.00
Wool nap (all cotton)	6.95
Blanket sheet (cotton napped, light weight 58 x 76)	2.95
Beacon (all cotton 66 x 80)	5.75
Fine wool (some cotton)	14.00
Wool and cotton 66 x 80	15.00
Wool and cotton 70 x 80	12.00
Nashua wool nap 72 x 84	7.50

[3] The score cards used had, at the right, a sufficient number of columns for recording scores for each sample.

EFFECT OF PACK AND DEPTH OF WATER BATH UPON INTERIOR TEMPERATURE OF JARS IN COLD PACK CANNING

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The question of the spoilage of home-canned products led to an investigation in this laboratory of the efficiency of different methods of home canning, some results of which should be of interest. They were obtained in the course of a research problem undertaken by the writer during the past year. On account of the interest this season annually brings to canning problems, and because of the added interest excited by recent outbreaks of botulism due to the eating of home-canned vegetables or fruits, the more important results of the investigation are here briefly summarized. Furthermore, while botulism[1] is unquestionably a real source of danger, the spoilage of home-canned fruits and vegetables by sporulating organisms other than B. botulinus represents in the aggregate a large figure. The experimental evidence here tabulated shows quite conclusively that even though canning directions ordinarily given be followed literally, there is still danger that the product will not be sterilized.

Method of experimentation. The apparatus used in these experiments was essentially the same as that described by Miss Denton in the December number of the JOURNAL.[2] Into a round opening cut into the tops of Mason jar caps, was fitted a thermometer by means of a one-hole rubber stopper. The container was a round, flat-bottomed, granite kettle, which could hold four jars. A wire netting raised ½ inch from the bottom afforded a resting place for the jars which, during all the work, were two in number. Into the loosely fitting cover of the container were drilled three holes through which protruded the two thermometers from the cans and a third thermometer reaching down into the water bath. The first temperature which could be read was 60°C. The thermometers were carefully tested and found to be calibrated correctly. The depth of the water bath was measured from the bottom of the kettle and therefore the jars were surrounded by ½ inch less depth

[1] "Botulism," Dickson, Ernest C., Rockefeller Institute for Medical Research Monograph No. 8, 1918.

[2] What Temperature is Reached Inside the Jar During Home Canning?, Denton, Minna C., *Jour. Home Econ.*, 10 (1918), pp. 548–552.

of water than the figures indicate. The source of heat was an ordinary gas burner, and an attempt was made to have the amount of heat constant from day to day by opening, to a certain angle, the valve governing the gas supply. The water bath was kept boiling for 60 minutes from the moment of uniform ebullition, and the time recorded when the thermometers registered 60°, 70°, 80°, 90°, 95°, and 99° to 100°C.

Cooling temperatures. Lack of time prevented the taking of the temperatures all through the cooling processes, but enough data were secured to show that the contents of the loosely packed jars were maintained for 36 and 38 minutes on two consecutive days at 99° to 100°; the medium packed, for 32 minutes at 95° to 98°; the hard packed, for 10 minutes at 80° to 82° on the first day, 8 minutes at 80° to 82° on the second day, and 16 minutes at 70° to 75° on the third day. If spores were present, especially in the hard packed jars, this method of sterilization would have had little or no effect upon their viability.

These results are in accord with those reported recently by Miss Denton.[2]

Effect of pack on interior temperature. Tables 1 and 2 show what a notable effect the method of packing the jars (that is, loose, maximum interior temperature 99°; medium, 98°; and hard, 82°) has on the speed and completeness of the penetration of heat to the center of the jar. The "hard" packed jars held no more material than might often be crowded into a jar by a thrifty housewife.

The curves plotted from table 1 give a graphic picture of the effect of the pack on heat penetration, and also bring out clearly the fact that in intermittent sterilization processes the amount of heat reaching the center of the jar is noticeably less on the second and third days than it is on the first day when the contents of the jars are fresh. In other words, cooking tends to pack the jars more closely and heat cannot penetrate so rapidly.

Effect of depth of bath on interior temperature. Table 2 also shows the comparative values of different depths of water-bath. Complete immersion instead of the shallow bath maintained the contents of the jars at the temperatures stated in table 2 for periods of from 8 to 60 per cent longer in the case of liquids. In the case of solid packs of carrots cut in one-fourth inch cubes the periods during which the contents were maintained at temperatures stated in table 2 are from 10 to 543 per cent longer.

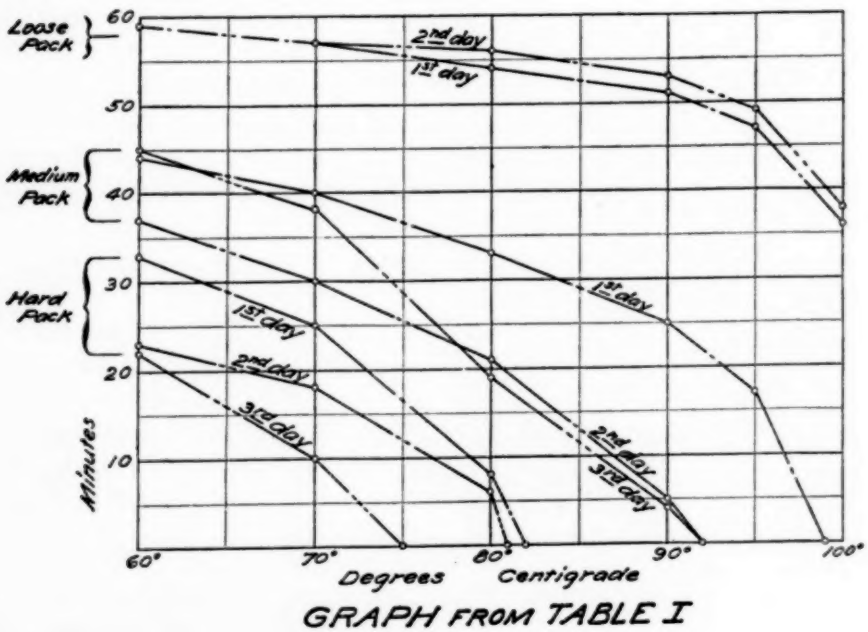
TABLE 1

Effect of pack upon interior temperature of contents (spinach) of glass jars (boiled 60 minutes after water-bath began to boil)

PACK	WEIGHT OF VEGETABLE IN QUART JAR	MAXIMUM TEMPERATURE OF CENTER OF JAR	MINUTES CONTENTS OF JAR WERE HELD AT OR ABOVE VARIOUS TEMPERATURES C.					
			60°	70°	80°	90°	95°	99–100°
	grams							
Loose	408							
First day		99°–100°	59	57	54	51	47	36
Second day		99°–100°	59	57	56	53	49	38
Third day*								
Medium	751							
First day		98°	44	40	33	25	17	
Second day		92°	37	30	21	5		
Third day		92°	45	38	19	4		
Hard	934							
First day		82°	33	25	8			
Second day		81°	23	18	6			
Third day		75°	22	10				
Hard†	931							
First day		82°	19	11	2			
Second day		54°						
Third day*								

* Can broke.

† Leaves were stripped from center rib.



GRAPH FROM TABLE I

TABLE 2

Effect of depth of water-bath upon interior temperature of contents of glass jars (boiled 60 minutes after water-bath began to boil)

SIZE OF JAR	DEPTH OF BATH	CONTENTS OF JAR	MAXIMUM TEMPERATURE OF INTERIOR OF JAR	MINUTES CONTENTS OF JAR WERE HELD AT OR ABOVE VARIOUS TEMPERATURES C.					
				60°	70°	80°	90°	95°	99°–100°
	inches								
Pint	3	Water	99°–100°	61	59	56	53	50	40
		Carrots	98°	54	50	41	33	21	
	7	Water	99°–100°	72	68	63	59	55	47
		Carrots	99°–100°	60	55	47	38	28	6
Quart	3	Water	99°–100°	54	51	48	44	39	30
		Carrots	85°	26	18	7			
	6	Water	99°–100°	60	56	52	47	44	36
		Carrots	96°	56	52	46	32	17	
	9	Water	99°–100°	75	70	65	59	54	46
		Carrots	99°–100°	61	59	52	38	24	1
Two-quart	3	Water	99°–100°	50	47	43	38	33	25
		Carrots	76°	16	10				
	6	Water	99°–100°	57	53	49	44	41	29
		Carrots	96°	55	48	39	25	8	
	9	Water	99°–100°	72	67	62	57	53	39
		Carrots	97°	60	54	46	33	16	

It may thus be seen that with the more shallow water-baths the maximum interior temperatures reached, 98°, 85°, 76° in the pint, quart, and 2-quart jars, respectively, are considerably lower than those reached in the deeper baths, 99°, 99°, 97°, and the higher temperatures were maintained for a longer period in the latter cases.

Effect of initial temperature of bath on interior temperature. Table 3 gives figures covering the first hour's sterilization process in the hot water method; that is, when the water-bath is boiling before the jars are placed therein. For comparative purposes figures are given in the same table for the first day's sterilization of jars filled with the same kind of material surrounded by water at temperatures near 17°C. and registering a temperature not far different when placed in the bath. It

will be seen at once that with the deeper bath it is much the more efficient process to start with cold water surrounding the jars, since the maximum temperature is higher, 99° instead of 95°, and time of maintenance of this maximum is longer, 24 and 16 instead of 12 minutes.

TABLE 3

Effect of initial temperature of water-bath upon interior temperature of contents (carrots) of glass jars (boiled 60 minutes after water-bath began to boil)

SIZE OF JAR	DEPTH OF BATH	MAXIMUM TEMPERATURE OF INTERIOR OF JAR	TEMPERATURE OF BATH WHEN JARS ARE IMMERSED	MINUTES CONTENTS OF JAR WERE HELD AT OR ABOVE VARIOUS TEMPERATURES C.					
				60°	70°	80°	90°	95°	99°–100°
	inches								
Pint	3	99°–100°	100°	55	52	49	44	39	24
		98°	17°	54	50	41	33	21	
Quart	3	99°–100°	100°	53	50	47	40	34	12
		85°	17°	26	18	7			
Two-quart	3	90°	100°	35	28	17			
		76°	17°	16	10				
Pint	7	99°–100°	100°	49	47	41	33	21	
		99°–100°	17°	60	55	47	38	28	6
Quart	6	94°	100°	38	31	22	8		
		96°	17°	56	52	46	32	17	
Two-quart	6	87°	100°	27	21	8			
		96°	17°	55	48	39	25	8	
Quart	9	95°	100°	40	34	26	12		
		99°–100°	17°	61	59	52	38	24	1
Two-quart	9	95°	100°	41	35	28	12		
		97°	17°	60	54	46	33	16	

Effect of blanching on interior temperature. A test was carried out, figures for which are not here given, to determine whether or not blanching for 10 minutes affects the rapidity of heat penetration during sterilization. The material tried was string beans cut into $\frac{3}{4}$ inch lengths, and the results were negative, leading to the conclusion that 10 minutes preliminary cooking does not soften string beans to the extent of allowing a closer pack. Linked to the recently shown evidence that cold shock,

as such, does not affect favorably the sterilization of canned goods,[3] this seems to exclude the possibility of blanching as a factor of sterilization, unless it be along the line of an initial cleansing or an adverse change in the hydrogen ion concentration.[4] These results differ from those obtained by Miss Denton.[2]

Summing up the evidence which this and previous investigations have afforded, the following conclusions seem warranted.

1. The completeness of sterilization of vegetables packed in glass jars and heated in a water bath for one hour on three successive days, counting time from the beginning of boiling of the water-bath, is questioned.

2. The water-bath should completely immerse the jars, and should be brought to the boiling point after immersion of the jars.

3. When a water-bath method is used very great care should be exercised in the pack. Loosely packed jars only should be used in canning by usual home methods.

4. Home-canned vegetables, particularly solid packed jars, should always be heated before use to avoid the danger of poisoning by the toxin of B. botulinus, the spores of which are exceedingly resistant to heat.[5]

[3] The Influence of Cold Shock in the Sterilization of Canned Foods, Bushnell, L. D., *Jour. Ind. and Eng. Chem.*, 10 (1918), pp. 432–436.

Utility of Blanching in Food Canning: Effect of Cold Shock upon Bacterial Death Rates, Bruett, Eva M., *Jour. Ind. and Eng. Chem.*, 11 (1919), pp. 37–39.

[4] Influence of Temperature and Hydrogen Ion Concentration upon the Spore Cycle of Bacillus Subtilis, Itano, Arao and Neill, James, *Jour. General Physiology*, 1 (1919), pp. 421–428.

[5] The Effect of Heat on the Spores of Bacillus Botulinus: Its Bearing on Home Canning Methods: Part I, Burke, Georgina Spooner, *Jour. Amer. Med. Assn.*, 72 (1919), pp. 88–92.

AN S. A. T. C. DIET KITCHEN

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Shortly after the opening of the Utah Agricultural College, in the fall of 1918, there came, from the college physician and the army physician, the proposal that the Foods Department of the School of Home Economics take charge of the preparation of food for the patients in the S. A. T. C. hospital on the campus. Plans to this end, and of such nature that the students in the foods classes could carry on a portion of this project as their share of campus "war work," were nearing completion, when, because of the outbreak of influenza, the College was closed on October eleventh.

For a week the Mess Hall provided food for the sick of the S. A. T. C. Then the Foods Department was urged to put into effect its hospital diet plan, even though college was not in session. The total number of sick at this time was a considerable multiple of the probable number (ten to forty in a group of 1000, as indicated by health statistics), and of the number whose diet the Foods Department was equipped to handle. The Staff agreed to be immediately responsible for the diet of twenty-five men who were most ill and required feeding every three hours. During the next four days they made hasty readjustments and preparations in the way of additional and suitable kitchen utensils, and an adequate corps of helpers, in order to assume entire responsibility for hospital food. Eleven days after college closed, the Foods Department served breakfast to one hundred and five patients and thirty-five attendants, and, until the date of the demobilization of the S. A. T. C., had full charge of diet for the sick. During these sixty-one days all meals, served to the sick and their attendants and nurses, were prepared in the foods laboratories in the Woman's Building, and sent from this place to the hospitals on the campus.

While influenza raged, the south wing of our main building served as an emergency hospital for those in quarantine. To provide for the sick whose illness was not influenza the stock-judging pavillion was converted into a temporary hospital designated as the infirmary. If the sick reporting here were discovered to be influenza patients they were taken at once to the emergency hospital; otherwise they remained in the infirmary. Having the sick in two different buildings on the campus

exactly doubled a portion of the work in the diet kitchen, for, although the food for the two places was prepared together, for serving it had to be divided, accurately measured, and packed separately for the two groups of men. Part of the time the food for the attendants and nurses in the emergency hospital was prepared and packed in another laboratory, and by a different corps of workers.

Each day the doctor or nurse in charge in each hospital reported to the diet kitchen supervisors the number to be fed the next twenty-four hours. The number of attendants and nurses in the day shift and the night shift in the emergency hospital was indicated, and the patients here were divided into three groups, namely, No. 1's, who received liquid diet, No. 2's, soft diet, No. 3's, light diet. No. 3 diet served for both patients and attendants in the infirmary, though at nearly every meal there was taken on the trays for one or two men only such part of the full meal as constituted a soft or liquid diet, as the case demanded.

The menu for each day was planned first for No. 3's; from this was selected such foods as were suitable for No. 2's, according to the doctor's directions. While No. 1 diet presented more nearly a distinct problem, economy in labor was effected, as far as possible, by preparing at once those foods suitable for all patients, as cocoa, lemonade, or cream soups, or those foods given alike to No. 1's and No. 2's, as gruels, beef tea, or ice cream, and by making the time of serving such foods coincident or consecutive. The following menus will illustrate.

Typical menus for patients

No. 1.—15 men		No. 2.—7 men	No. 3.—48 men
5.00 a.m.	Hot milk	Cream of wheat, cooked in part milk, and ½ c. raisins Top milk, ½ c. Toast, 1 slice Butter, 1 pat Cocoa (milk), ¾ c.	Cream of wheat, cooked in part milk, and ¾ c. raisins Top milk, ½ c. Toast, 2 slices Butter, 1 pat Cocoa (milk), ¾ c.
8.00 a.m.	Cocoa, 1 c.		
9.45 a.m.		Lemonade, 1 c.	
11.00 a.m.	Lemonade, 1 c.		
12.45 p.m.		Cream of tomato soup, ¾ c. Crackers, 2 Toast, 1 slice Soft cooked egg, 1 Brown Betty, ½ c. Lemon sauce, ¼ c. Tea, ¾ c.	Cream of tomato soup, 1 c. Crackers, 2 Meat loaf, 1 slice (Bean pulp, meat, catsup, bread crumbs) Bread, 1½ slices Butter, 1 pat Brown Betty, ½ c. Lemon sauce, ¼ c. Tea, ¾ c.

2.00 p.m.	Wheat gruel, 1 c.		
2.45 p.m.		Wheat gruel, 1 c.	
5.00 p.m.	Beef tea, 1 c.		
5.30 p.m.		Pea puree, ½ c. Potato (boiled), 1 Toast, 1 slice Butter, 1 pat Pineapple tapioca Milk, 1 glass	Buttered peas, ½ c. Potato puff, 1 c. Bread, 2 slices Butter, 1 pat Pineapple tapioca, ½ c. Milk, 1 glass
8.00 p.m.	Egg nog, 1 c.		
11.00 p.m.	Beef tea, 1 c.		

November 1, 1918

	No. 1—14 men	No. 2—4 men	No. 3—25 men (Emergency) 24 men (Infirmary)
5.00 a.m.	Hot milk, 1 c.		
8.00 a.m.	Egg nog, 1 c.	Milk toast, 1 slice and ½ c. milk Baked apple, 1 Cocoa (milk), ¾ c.	Cornflakes, 1 c. Top milk, ¾ c. Baked apple, 1 large Scrambled eggs, creamed, 1 egg and ½ c. sauce Toast, 2 slices Butter, 1 pat Cocoa (milk), ¾ c.
9.45 a.m.		Egg nog, 1 c.	
11.00 a.m.	Cream tomato soup, ¾ c.		
12.45 p.m.		Roast chicken—small piece—breast Jelly, 1 T. Mashed squash, ½ c. Buttered toast, 1 slice Cornstarch pudding, ½ c. Top milk, ¼ c.	Roast chicken,1 large piece Jelly, 2 T. Mashed squash, 1 c. Celery, 3 pieces Bread, 2 slices Butter, 1 pat Cornstarch pudding, ¾ c. Top milk, ¼ c.
2.00 p.m.	Cocoa, 1 c.		
2.45 p.m.		Milk chicken broth, 1 c.	
5.00 p.m.	Milk chicken broth, 1 c.		
			27 men (emergency) 31 men (infirmary)
5.30 p.m.		Stewed corn, ¾ c. Baked potato, 1 small Buttered toast, 1 slice Butter, 1 pat Apple tapioca, ½ c. Lemon sauce, ¼ c.	Stewed corn, ¾ c. Baked potato, 1 medium Wilted lettuce and egg, ¾ c. and lemon salad dressing Bread, 1½ slice Butter, 1 pat Apple tapioca, ½ c. Lemon sauce, ¼ c.
8.00 p.m.	Egg nog, 1 c.		
11.00 p.m.	Milk, 1 c.		

Typical menu for attendants and nurses

Breakfast	*Supper*
Stewed prunes	Meat stew
Cornflakes, milk	Swiss chard with egg
Scrambled eggs	Bread, butter
Creamed potatoes	Apple sauce, cake
Muffins, butter	Milk cocoa
Coffee	
Dinner	*Midnight meal*
Baked halibut, tomato sauce	Cold sliced meat
Mashed potatoes	Baked squash
Buttered peas	Bread, butter
Bread, butter	Chocolate tapioca
Pumpkin custard	Coffee
Tea	

The menu for the day, with the number of men in each group and in each hospital, was posted on the wall in the larger of the two laboratories where the food for the sick was prepared; the menu for the attendants and nurses and the number in the day and night shifts, in the laboratory where this food was prepared; and in each case the amount required for each individual was indicated. Each girl thus had before her the data from which to calculate the entire quantity of a given food to whose preparation she was assigned.

The three members of the foods staff planned the menus for patients, attendants, and nurses, and divided among themselves the work of supervision. One, responsible for the attendants and nurses meals, so arranged the work that, though she shared in the preparation of breakfast, she was able to rest for a time in the afternoon and again be on duty for the evening meals. A second supervisor came for the preparation of breakfast for the sick, and remained through the noon meal; the third came on duty in the "invalid diet" kitchen shortly before noon, and remained until the K. P.'s had washed the supper dishes. The girls reported for duty at such hours as divided the corps into two shifts whose time overlapped in the middle of the day when the work was heaviest. Those who left home at 5.15 or 5.45 a.m. left the kitchen early in the afternoon, at the end of an eight or a nine hour day; while those who came at 9.00 or 10.00 a.m. remained until supper had been taken. The early-comers who lived in the town, a mile or two from the campus, were brought in the college automobile to the Woman's Building, each morning. We credit the faithful and punctual chauffeur of this car with a goodly portion of the smooth running of the kitchen.

The personnel of the corps varied but little. It included seven of the members of the home economics staff, three extension workers, ten city school teachers, four housewives, and five home economics seniors. Two of the corps, other than the home economics staff, were trained home economics graduates and were paid accordingly; all the rest received merely working-women's wages. What effect and how great this pay had upon constancy and efficiency in work it would indeed be difficult to say, but the absolute harmony, happiness, and coöperation at all times among the workers was plainly evident, and the devotion to such details as ordinarily are uninviting and uninteresting was one of the flattering and inspiring features of the success of the whole undertaking. No one ever tired of her job!

As each helper came on duty, she was given a slip of paper on which was noted the food preparation and packing for which she would be wholly responsible, or share with one or more others who were named on her slip. To illustrate:

Potter	*Batt*
Top milk for cereal.	Pack dishes for breakfast.
Finish cereal.	Serve breakfast in infirmary.
Help Batt toast.	Make cocoa.
Roast—carve—with Nelson.	Toast—with Potter.
Help Daniels butter carrots.	Soft cooked eggs.
Start oats for breakfast.	Baked custard—with Young.
Wash dishes.	Help Nelson—plain cake.
	Soak prunes—6 per man.

The Foods Department feels fully justified in taking considerable pride in the fact that meals were ready on the stated minute, with military precision. All through the sixty-one days the diet kitchen was open the girls estimated with remarkable accuracy the time necessary for preparing the dishes for which they were responsible, so that the food did not suffer by undue standing after it was once ready.

All the food was transported on one of the army trucks manned by a detail of S. A. T. C. men under the supervision of a sergeant. The food was packed in suitable containers, covered, and labeled. For example: Tomato soup for No. 3 patients, 1 c. per man; Toast for No. 2's, 1 slice each; for No. 3's, 2 slices each. Chocolate malted milk for No. 1's, ½ c. each. Coffee for nurses, 2 cups each. Meat for attendants,

2 pieces each. Custard for Infirmary, 1 mold each. Hot preparations were packed in double boilers or in heavy walled utensils. Dishes upon which hot food was to be served were heated before packing in big dish pans, and covered well with wrapping paper. Members of the truck detail held in hand during transit those utensils in which was material likely to splash out, as an urn of cocoa, or a pitcher of milk. All other containers when loaded on to the truck were covered over with a clean canvas which further protected them from dirt and cold. The truck called at the Woman's Building for food for patients in both hospitals, at the following hours: 7.45 a.m. breakfast, 12.45 p.m. dinner, 5.30 p.m. supper; and for feedings for No. 1's at 8.00 p.m., 11.00 p.m., and 5.00 a.m. Additional calls were made between breakfast and dinner, and dinner and supper for the extra feedings to be given patients on liquid and soft diet. Meals for attendants and nurses left the Woman's Building at 6.15 a.m. breakfast, 11.45 a.m. dinner, 6.15 p.m. supper and midnight meal. This fourth meal was sent prepared as far as possible, though usually one or more dishes were merely made ready for the assistants to finish so their food could be hot.

The food arriving at the hospitals ten to twenty minutes after it left the Woman's Building was in excellent condition as regards temperature. The truck stopped first at the infirmary, where was unloaded the food for the patients and attendants there. One or two members of the diet kitchen corps went at every meal to this hospital to serve the food on the trays. The two or three sergeants, attendants here, carried the trays to the patients in their ward. Later they gathered up the trays and packed the dishes ready for the truck to return them to the Woman's Building. In the emergency hospital the serving was done by some of the soldier attendants and carried to the patients by others. Attendants here gathered up the dishes after each meal, put them through disinfectant solution, and packed them ready for return on the truck. Dishes to be washed reached the foods laboratory from one and one-half to two and one-half hours after each meal had been sent. In the laboratories where the food for the sick was prepared the dishes were washed, scalded, and dried by the diet kitchen girls after breakfast and dinner; but after the evening meal, and after all three meals in the laboratory preparing attendants and nurses' food, the dish washing was done by "K. P.'s." The work of supervising the latter was lightened by special provision made by the Mess Officer, allowing a given detail of men to remain on duty for one week, rather than one day as is the usual rule

for "K. P." work. Obviously those S. A. T. C. men who were never sent for "K. P." work in the Woman's Building lost the special training in the art of scientific dish washing under the supervision of the Foods Department Staff. Seriously, by the end of each week, no "K. P." group showed evidence that it regarded the work as irksome.

Figures in part indicate the magnitude of the venture. The number of meals served calculated from the daily records kept are as follows: To patients—October, 2482; November, 5369; December, 992 (includes attendants and nurses); total, 8843. To attendants and nurses—October, 1316; November, 3095; total, 4411. To kitchen help and supervisors (noon meals)—October and November, 703; December 124; total 827. Grand total, 14,081.

The food supplies for the diet kitchen were furnished in part from the Commissary Department. The Mess Hall kitchen sent to the Woman's Building daily the number of loaves of bread needed. It also furnished as needed, such materials as cocoa, coffee, cornflakes, macaroni, potatoes, beans, oleo, flour, dried fruit, canned beans, corn, and salmon. The Mutual and Relief Societies sent in 150 quarts of canned fruit and twenty quarts of jam and jelly. Other supplies, as fresh fruits, sugar, canned milk, fresh eggs, fresh vegetables, crackers, meat, cheese, butter, and milk were procured from the local wholesale house, grocer, butcher, or dairyman. The total expenditure for food supplies, including the estimated cost of the donated fruit, was $2011.01. This makes the average cost per day $32.967 for supplies only; the cost per man per day, $0.428 for supplies only. Including pay roll the diet kitchen expenditures amounted to $2799.35, making an average total cost per day of $45.896; and the total cost per man per day, $0.596. We consider these figures reasonable, if not actually low, when we take into account the fact that the sick had: Every meal—fruit, fresh, canned, dried or preserved; milk, (No. 1, and No. 2 patients one quart per man, per day. No. 3, patients, one quart after the number of patients was diminished); butter, on the tray; oleo, used for seasoning and cooking. Every day—meat, once or twice (chicken twice each week); fresh eggs, once to three times, each man receiving one to two and one-half eggs; cereal, cooked in $\frac{1}{4}$ to all milk, if cooked; fresh vegetable, at least once.

The supervisors found that the diet kitchen furnished a very practical problem in dietetics. With the actual work of cooking, washing dishes, ordering supplies and supervising, they were able to weigh a sufficient number of food preparations so that the nutritive value of the meals

could be calculated in terms of protein and calories. These figures must be as accurate as those worked out in typical dietetics classes, and as can be expected outside of the strictly experimental laboratory. The calculations made for eight days, five of which were consecutive and the other three each typical, show that each man receiving a No. 3 diet, consumed, on the average daily:

	Protein grams	*Calories*
Breakfast	27	746
Dinner	39	904
Supper	31	948
Total	97	2598

The following statistics were volunteered by the sergeant attendants in the infirmary. All gained in weight. Sergeant A gained twenty pounds in the first two of six weeks, and held the gain. His gain was made on the quantity of food served to one patient. Sergeant B, within the six weeks, gained twenty-nine pounds. Sergeant C, in four weeks, gained twenty-seven pounds. In view of the amount of protein and number of calories in the daily average diet, and the presence of liberal quantities of milk, eggs, and fresh vegetables, the food served to the sick must surely be regarded as "adequate."

The physicians in charge were most kind and generous in their expressions of approval of the food prepared for the patients, and they attribute to it a share in the fine record that the Agricultural College of Utah made in handling the "Flu" situation. It is a point of not a little comment, that not a member of the diet kitchen corps was a "Flu" victim.

The days of conservation were still with us, and great care was taken in the diet kitchen, both to prevent waste and to make the best utilization of all materials. For illustration, when preparing stewed apples or sauce the parings were cooked and the resulting juice used for making a pudding sauce, or else the cooked material was pressed through a sieve making very fine and smooth sauce. Chicken proved to be our cheapest meat, since by a generous purchase we were able to serve pieces of chicken at one meal, and for a second use the meat of the bony pieces for patties, or creaming, or in thick soup. After the meat was scraped from the bones they were again stewed, and considerable additional flavor was procured if not much nutritive substance. Portions of cereal left were utilized in custards and simple puddings. There was no difficulty in disposing of bread scraps in pudding, or crumbs for baked dishes. Small

amounts of fruits went into the make up of puddings, souffles, or gelatin desserts. The soup kettle swallowed up many a small portion of vegetable or meat. Mashed potatoes made a second appearance in potato puff, and plain boiled or baked potatoes formed the top of cottage pie, or perhaps were riced or scalloped. The outer leaves of lettuce were wilted while the inner more tender ones were served in crisp salad. Perhaps it should be mentioned that the left overs, used as indicated, were never those from food that had once been sent to the emergency hospital.

Because one, two, or all four of the other home economics staff members were on duty with the foods instructors throughout the time the diet kitchen was operating, and for a portion of that time one or two members of the Extension Department were also helping, there was afforded an opportunity unequaled, in any other probable circumstance, for the foods staff, two of whose members are new-comers this year, to become acquainted with their co-workers.

Further human interest and recreation, approaching that demanded by the human play spirit, we found in the suggestions inherent in the red letter days of the calendar. On Hallowe'en, our menu for No. 2's and 3's included a few pieces of plain fondant, chocolate dipped, and set upon each tray in a wee cup all bedecorated with seasonable cats and pumpkins and witches. The truck detail and "K. P.'s" were given ginger bread and coffee with real cream, and fruit salad in apple cups into which had been carved grotesque faces. Their eating in our department dining room must have been a treat after the regular Mess Hall arrangement. On Thanksgiving we had not only roast turkey and cranberry sauce for the actual pièce-de-résistance at noon, but also, on the supper trays were three or four pieces of home made candy and stuffed dates. The girls in the kitchen made good sport of the candy making. On this date the "K. P.'s" and truck detail were served, again in our dining room, with one crust raisin pie smothered with whipped cream, and hot milk cocoa. As Christmas with demobilization days approached hand in hand, we prepared pounds of home made candy and packed into gay boxes these sweets for our soldier boys.

Considering the diet kitchen venture as presenting a problem, interesting, practical, and professional, and an opportunity to be of actual service to our men in uniform and therefore to our nation, and appreciating that it opened a field for happy comradeship in work, we who were an intimate part of that venture look upon it as a priceless experience.

A NEW PROGRAM FOR THE PROMOTION OF HOME ECONOMICS IN THE SCHOOLS

EDNA N. WHITE

President of the American Home Economics Association

The Smith-Hughes Act has opened the way for remarkable development in vocational education in this country. There are, however, certain limitations which this law has imposed upon vocational home economics due to the fact that, in the act, home economics is included in that section which sets up the standard for trade and industrial education.

To remedy this difficulty and to provide adequate funds for home economics education, a bill, entitled "A Bill to Provide for Coöperation with the States in the Promotion of Vocational Education in Home Economics and to Appropriate Money and Regulate Its Expenditure," is to be introduced into Congress, and it should have the active support of every member of the Home Economics Association and of every reader of the JOURNAL. This bill will be a substitute for that portion of the Smith-Hughes Act which relates to home economics. It will provide for an interpretation of vocational home economics along the broad lines outlined below, so that the large groups of girls and women who need instruction may be reached by homemaking classes in day, part-time, and evening schools. This bill further includes an appropriation which will provide for home economics the same amount of Federal aid as is provided for agricultural education and trade and industrial education.

The Vocational Education Act recognizes homemaking as a vocation, comparable with industrial or agricultural pursuits, and vocational home economics is designed to train girls and women for work in their own homes as house daughters or as homemakers as well as for employment in the homemaking occupations. Yet the fact that home economics is included in that section of the bill which deals with trade and industry has caused some misunderstanding, especially since to many vocational education has meant only training for industry or for a wage earning occupation outside of the home.

Education in homemaking is the most far reaching of any of the forms of vocational education. There are about twenty million homes in the United States furnishing an occupation into which more workers

go than into any other single trade or profession; yet only an infinitesimal portion of those engaged in it have any training for it. According to the census of 1910, there are in the United States more than forty-four million girls and women. Of these, about eighty per cent will marry and homemaking will become their chief occupation. The large majority of girls and women are responsible in one way or another for some part in the home activities, either as managers and workers in their own homes or as members of a household with a share in its duties. The average girl of over 14 needs training in the work of the home and the larger social and economic principles of family life; for, either as an independent worker in industrial lines or as a member of a family, some share in the life of the home or in the management of the income is hers.

There are three large groups of girls and women to be reached by homemaking training, and to be effective, vocational education must be planned to meet the best interests of all these women.

These groups are, roughly, the girls of 14 to 16 who are in school, the girls of over 14 who have dropped out of school, and the older women most of whom are at work in their own homes.

To reach all of these with the homemaking training which will best fit their needs, courses must be offered in day, part-time, and evening schools.

The greater number of girls who are now being reached through the schools are the few who elect some home economics in the day schools. There are many more girls who would be interested and would be held in school longer if the right kind of home economics courses were planned for them. For most of these girls the four-year high school course, with an adequate amount of home economics and related science and arts, is the one which will best fit them for their later homemaking responsibilities. There are, however, groups of girls in school who will soon drop out from one cause or another, and these girls should be given a shorter, more intensive course in homemaking.

Among the girls who are out of school and who should be given some part-time courses in homemaking, we find those who have dropped out because they were not interested in regular school work or because they were needed to help with the home duties, and the large group of girls who have gone to work as soon as working papers could be secured. With the passage of compulsory part-time education laws, more and more of these girls will come back to school for from four

to six hours of instruction a week. For most of these, homemaking training should form a part of the course; for some of these girls who are either at work in the home, or who desire training for occupations closely connected with the home, at least half time should be devoted to such training.

The groups of older girls and women who should be reached through evening schools are made up of women who are at work in their own homes and who need help in their immediate problems; women who are at work outside of the home and yet who either have homemaking duties or who expect soon to assume them; and women who desire training for work as household assistants or training in some other occupation in the field of home economics. For all of these groups short unit courses, organized as a definite part of the public school system, are needed. These courses are not meant to take the place of the extension work which is doing such effective service—the one is a supplement to the other. Extension work awakens an interest, broadens the vision and stimulates a desire on the part of the women for a better understanding of their work. Both types of instruction are needed if we are to begin to reach all of the women who wish and who deserve a chance for help in their daily problems.

To briefly classify the groups who should be reached by classes in the schools, we find that the short unit courses (afternoon and evening classes) should be designed to meet the needs of:

Groups of homemakers at the time they urgently need help to solve their home problems.

Groups of women who are at work in occupations outside of the home, yet who expect soon to become homemakers and who should be given the opportunity for homemaking education.

Groups of women who are in occupations outside of the home yet who have some home duties and wish homemaking training to enable them to better perform their household tasks or to improve their living conditions.

Groups of women who are employed or who desire employment as helpers in some capacity within the home and who desire training which will enable them to more efficiently perform their services and to demand a better wage.

Part-time schools or classes should reach girls of:

Fourteen years of age on whom a large responsibility for the work of the home unfortunately rests, due to the loss or ill health of the

mother, or due to financial conditions which make it essential for the mother to earn a living outside of the home.

Girls at work in factories, or stores, who are released for a certain number of hours per week for instruction.

Girls employed in the homes as household assistants who should be released for part-time instruction in homemaking.

Groups of girls who desire training as household assistants, or for other occupations in the field of home economics.

A large number of girls who have left school because they are not interested in day school work. Many of these may be reached by the type of part-time instruction designed to interest them and to meet their needs as house daughters and as future homemakers.

The work given in day schools should be planned to reach three large groups of girls:

Those who have dropped out of school because the type of instruction did not interest them due to its failure to touch the immediate needs of their daily life. Such girls may frequently be persuaded to come back for the course which is designed to hold their interests and to meet their needs.

Girls of over 14 years of age who are in school but who are not interested in the ordinary academic work. They are over-age girls, slightly backward girls, or girls who never expect to go further in their education. Many of these girls could be interested and would develop further, if given the right type of homemaking education.

Average high school girls, many of whom will make up our community leaders among women. These girls should be reached by the right type of homemaking instruction which will not only make them better wives and mothers but will enable them to play a larger part in the social and civic life of the community.

As has been stated above, the administration of the Vocational Education Act as it relates to home economics has been difficult in many of the states due to the fact that home economics is included in that section of the law which sets up the standards for the trade and industrial schools and classes, and thus subjects home economics education to the same rulings as trade and industrial education.

For the group of girls who will remain in school for only a short time and who need short intensive courses in homemaking, courses in the day school have been well worked out in accordance with the standards set for the day trade and industrial school. However, this type

of school does not meet the needs of the average high school girl, because the conditions established for the trade and industrial schools are based upon the assumption that the average pupil has had no previous direct contact with the occupation which she is preparing to enter. This is not true in the case of girls preparing for the homemaking occupation, for practically all girls have had contact with some phases of homemaking and in a large number of cases have had a share in the duties of the home.

It must further be remembered that homemaking is a composite of many differentiated occupations requiring various forms of related knowledge. Under ordinary circumstances the efficient homemaker must be a reasonably skilled worker in four or five semi-skilled occupations. In addition she is usually joint owner and manager of the whole enterprise. The efficient homemaker must be a skilled worker in general housekeeping, in the preparation and serving of food, the care and rearing of children, the care of the health of the family, the care and repair of the clothing of the family, and the promoter of the public health of the community. As a joint manager, the homemaker is largely responsible for the character of her enterprise, the standard of living, and the quality of the product of the home,—the child. She is a purchasing agent, a partner in the business, and usually the business manager. As superintendent of the plant, she plans her own work, that of the members of the family, and the work of the employees, if she has them. She is the educational director, health and welfare manager, and the social head of the family group. Homemaking, then, cannot be compared to a unit trade and the training which is necessary for the development of a homemaker cannot be held to the same conditions as those set up for training in a trade.

Such a program for the promotion of home economics cannot be carried on without adequate funds. With the small amount which is available for home economics under the Smith-Hughes Act good work has been accomplished, but under that act home economics will have difficulty in developing as rapidly and efficiently as agriculture and trade and industry. Homemaking will never be recognized as a real vocation for a large group of the American people unless a definite amount of money is appropriated for this great work. There are no funds appropriated in the Vocational Education Act for the salaries of teachers and supervisors of home economics. The Smith-Hughes Act provides that a maximum of 20 per cent of the funds available for

the salaries of teachers of trade and industry may be used for home economics, but it is left entirely to the state boards as to whether they will use this amount for homemaking instruction or use it all for the establishment of trade and industrial schools and classes. Further, the appropriation to the states for the salaries of teachers of trade and industry are apportioned on the basis of the urban population of the state. This works a great hardship in the case of homemaking training, for 31 of our states have a rural population larger than their urban population. Trades and industrial pursuits are carried on in the cities, but homemaking is an occupation that is carried on by all of our people and the appropriation to the states should be on the basis of their total population rather than on their urban population.

New legislation is needed to make adequate provision for a program of home economics education which provides for the establishment of courses of instruction in day, part-time, and evening classes. Such courses must be thoroughly practical so that the instruction will function in the home and at the same time must give the homemaker a vision of the larger aspects of homemaking in relation to community needs and responsibilities.

To summarize, the essential points to be included in any form of new legislation are:

1. Provision for a broad interpretation of "the half-day of practical work on a useful or productive basis." Provision must be made to reach the groups of women who are employed in their own homes; the groups of younger girls who are employed either at home or in occupations outside of the home and who should be required to have some homemaking training; and the group of girls who are in school. This will require a broad phrasing so as to provide both the type of instruction needed and adequate time for such instruction.

2. The appropriation of a definite sum to be spent for the salaries of teachers and supervisors of home economics education.

3. The allotment of the appropriation for the salaries of the teachers of home economics to the states in the proportion which their total population bears to the total population of the United States.

4. The appropriation of moneys for the administration of home economics education, which is at present not being adequately provided for.

5. The provision that states which have already accepted the provisions of the Vocational Education Act, and have appointed the Treas-

urer custodian of funds, automatically accept the new provisions for home economics education.

The Council of the American Home Economics Association heartily endorses the spirit and purpose of this bill and urges you as a member of the Association, or as one interested in the welfare and larger development of the homes of this country, to write to your congressmen and senators asking them to consider this bill and to vote favorably on the measure.

The text of a tentative bill submitted to the Chairmen of the Committees on Education and Labor in the Senate and House follows.

A BILL TO PROVIDE FOR COÖPERATION WITH THE STATES IN THE PROMOTION OF VOCATIONAL EDUCATION IN HOME ECONOMICS AND TO APPROPRIATE MONEY AND REGULATE ITS EXPENDITURE

BE IT ENACTED BY THE SENATE AND HOUSE OF REPRESENTATIVES OF THE UNITED STATES OF AMERICA IN CONGRESS ASSEMBLED:

That there is hereby annually appropriated out of any money in the Treasury, not otherwise appropriated, the sums provided in Section 2, of this act to be paid to the respective states for the purpose of coöperating with the states in paying the salaries of teachers, supervisors, and directors of home economics subjects, and the sum provided in Section 3 for the use of the Federal Board for Vocational Education for the administration of this act and for the purpose of making studies, investigations, and reports to aid in the organization and conduct of vocational home economics education, which sums shall be expended as hereinafter provided.

SECTION 2. That for the purpose of coöperating with the states in paying the salaries of teachers, supervisors, or directors of home economics subjects, there is hereby appropriated for the use of the states, subject to the provisions of this act, for the fiscal year ending June 30, 1920, the sum of $500,000 and annually thereafter for nine years an amount for each year equal to the amount appropriated for the year preceding increased by $250,000, and for the fiscal year ending June 30, 1930, and annually thereafter the sum of $3,000,000; such appropriations to be paid to the states in the same manner and upon the same terms and conditions, except as hereinafter provided, as the funds now provided by the Vocational Education Act, approved February 23, 1917, for coöperation with the states in the payment of the salaries of teachers of home economics subjects, and to be in lieu of said funds; the acceptance of any state of the benefits of said Vocational Education Act being deemed an acceptance of the benefits of this Act and

entitling such state, upon compliance with the terms and conditions contained in this act and in said Vocational Education Act, to its allotment of the appropriations as herein provided. That the appropriations hereby made shall be alloted to the states in the proportion which their population bears to the total population of the United States, not including outlying possessions, according to the preceding United States census, providing that the allotment of funds to any state shall be not less than a minimum of $5,000 for any fiscal year prior to and including the fiscal year ending June 30, 1925, nor less than $10,000 for any fiscal year thereafter. And there is hereby annually appropriated the sum of $50,000 or so much thereof as may be necessary, which shall be used for the purpose of providing the minimum allotment to the states provided for in this Section.

SECTION 3. That there is hereby appropriated to the Federal Board for Vocational Education the sum of $75,000 annually for the purpose of making, or coöperating in making, studies, investigations, and reports to aid in the organization and conduct of vocational home economics education and for administrative expenses incident to performing the duties imposed by this act and the Vocational Education Act insofar as the same relates to vocational home economics education, including salaries of such employees in the District of Columbia or elsewhere as the Board may deem necessary, actual traveling and other necessary expenses incurred by the members of the Board and by its employees under its orders, including attendance at meetings of educational associations and other organizations, rent and equipment of quarters in the District of Columbia and elsewhere, purchase of books of reference, law books, and periodicals, stationery, typewriters and exchange thereof, miscellaneous supplies, postage on foreign mail, and all other necessary expenses.

SECTION 4. That in order for any state to secure the benefits of the appropriations provided by Section 2 of this act, the State Board for Vocational Education of the state, created or designated in accordance with the provisions of the Vocational Education Act, shall prepare plans showing the kinds of home economics education for which it is proposed that the appropriation shall be used; such plans shall be submitted by the State Board to the Federal Board for Vocational Education and if the Federal Board finds the same to be in conformity with the provisions and purposes of the Vocational Education Act and this act, the same shall be approved; that any state may use the appropriations or any part thereof allotted to it under the provisions of this act for the salaries of teachers of home economics subjects in schools or classes or for the salaries of supervisors or directors of such subjects under a plan of supervision for the state to be set up by the State Board with the approval of the Federal Board for Vocational Education; that in order to receive the benefits of the appropriations of this act the State Board of any state shall provide in its plan for home econom-

ics education that such education shall be that which is under public supervision or control; that the controlling purpose of such education shall be to fit for useful employment in the home or other occupation in the field of home economics; that such education shall be of less than college grade and be designed to meet the needs of persons over fourteen years of age who have entered upon or are perparing to enter upon the work of the home or other occupation in the field of home economics; that not more than one-third of the sum appropriated to any state under this act shall be expended for the salaries of teachers in schools or classes for those who have not entered upon employment, and that the teachers, supervisors, and directors shall have at least the minimum qualifications for teachers, supervisors, or directors determined upon by the State Board with the approval of the Federal Board for Vocational Education. The provisions of this section shall be in lieu of the provisions of Section 11 of the Vocational Education Act in so far as the same relate to home economics.

It is interesting to know that one-third of the American soldier's rations (34.1 per cent) consisted of flour, 28.2 per cent of meat, 8.3 per cent coffee, 7.3 per cent vegetables, 6.8 per cent beans, 3.7 per cent sugar, 2.5 per cent milk, 1.7 per cent fruits. These figures are taken from records of food shipped from this country—our soldiers also ate fresh vegetables and fruits purchased in France.—*Where the War Money Went. Treasury Department, War Loan Organization.*

EDITORIAL

Wages and the Cost of Living. There has gone abroad a widespread opinion that wage earners in spite of the high cost of living are better off than they have been for a long time because of the great increase in wages paid. It is worth while to study the résumé of a brief study into the wages of women and the cost of living in New York City and Brooklyn, made by the Consumers' League of New York[1] in the fall of 1918. Comparing this with the report of the Committee on Home Economics of the New York Charity Organization Society,[2] one finds that the increase of wages for women wage earners is less than for families, yet of the families studied only 40 per cent had increased their income, 40 per cent had no increase, and 20 per cent had an actual decrease. It is to be remembered that this is a study of a small though fairly typical group. Probably we shall never be able to obtain exact figures in regard to all wage earners. Of individual workers only 31 per cent had increased, 57 per cent had had no increase and 12 per cent had decreased.

There are approximately 200,000 women breadwinners boarding in New York City. In their brief study the Consumers' League found 3,016 girls receiving less than $12.00 a week. Of these, 45 per cent were earning less than $10.00 a week, 30 per cent less than $9.00, and 4 per cent less than $8.00. These girls were not beginners; 66 per cent had worked more than a year, 11 per cent had worked five years and over; 41 per cent were graduates of the elementary schools, and 29 per cent had been high school students.

In 1914 the official minimum weekly budget for a working woman in New York State was $9.00. This was determined by the New York State Factory Investigating Commission. Applying to this increased retail prices, as reported by the Bureau of Labor Statistics and others, the League finds that $15.00 is a minimum upon which a wage earning

[1] Is This Living? Consumers' League of New York City, 105 E. 22 St., New York City, January, 1919.

[2] "My Money Won't Reach . . . . ." Committee on Home Economics, Charity Organization Society, 105 E. 22 St., New York City, April, 1918.

girl can obtain decent shelter, proper clothing, and adequate food in New York City. This means an allowance of $7.35 a week for room and board, including lunches; $3.60 for clothing; while laundry, car fare dentist and doctor bills, and all other essentials must be taken care of for $3.85. The report says: "These figures become even more astounding, in view of the fact that the press has led us to believe that everyone was receiving more-than-living wages, when we realize that the statistics were gathered at the high water mark of wages in 1918, from employment files where trained workers register." Figures show that between 1914 and November 1918 the cost of living in New York State increased 62 per cent, clothing for women went up 112 per cent, food 65 per cent, fuel and light 25 per cent, and incidentals 62 per cent. "Shoes are $8.00 a pair not only to the girl who is receiving $35.00 a week in the munitions factory,—they are $8.00 to the clerk who is still receiving $8.00 a week behind the counter." The Consumers' League found that $3.00 a week was the minimum price at which a clean and respectable furnished room could be had. "For running water, or for a gas plate for cooking, one had, of course, to pay more. If one paid less than $3 one had to choose either accommodations so dirty as to be uninhabitable, hall bedrooms over saloons, or skylight rooms with no windows." A study of the different types of restaurants showed that the same kind of lunch that cost 15 cents in 1914 cost 35 cents in 1918. Many of these girls are not only supporting themselves but helping toward the support of others—under what conditions it is difficult to realize.

Many of the girls are living in homes subsidized either by free rent or volunteer service, or outright money gifts. A few years ago the Consumers' League encountered some girls who were paid so poorly by a manufacturer that living in one of these cheaper homes was a necessity. Investigation revealed that this home was supported in large part by this same low wage-paying manufacturer. "Industries which pay women less than a living wage are not meeting their own fixed charges, for they are subsidized either by the family of the woman worker or by her friends or by public or private charity, or by the girl herself in slow starvation." Examples are given of interviews with 87 girls early in 1919, that show "as pitiful deprivation in a $10 budget in 1919 as there used to be in a $6 or $7 budget in 1914." Of these 87 girls 17 were not only supporting themselves but helping support others. One mother of 24 took care of her 9 months old baby and herself

on $8 a week. "An aristocratic, whitehaired woman of 60 years," New England by birth, was never able to afford any lunch. "At the Home, where she lived six years, she is treated very kindly, and they 'carry her along' when she is 'up against it.' Asked about the doctor's bill, she said the doctor refused to take even a little, and bit her thin lips, as she said, 'But that's not respectable!'"

The ill paid girl finds it almost impossible to provide for any recreation. This is to her as important a need as that for the bare necessities of life, and its absence "plays a large part in the break-down of the moral stamina of young girls. It is the ill-paid worker, more than any one else, who needs recreation to break the monotony of her drab existence. And as one old-young girl sadly remarked: 'It's easy enough to get some one to help you along here in New York.' In this tendency to break down the moral reserve, lies one of the greatest dangers of the less-than-a-living wage."

It is time that all of us waked up to the fact that the high wages of which we hear so much are very much in the minority, and that a large portion of women workers in our big cities are still undertaking to live for less than is possible if any adequate standard is applied.

COMMENT AND DISCUSSION

I should like to see discussed, in the columns of the JOURNAL, the question of basement laboratories. These are often dark and unsanitary and the environment even in well lighted ones reacts upon both pupils and teachers.

During these reconstruction days new schools are going to be built, and architects and some Boards of Education still feel that the basement is the only place for the Household Arts Department of the school.

A new school is being planned in our city. I suggested to the architect that my work be put on the top floor. He was very indignant and said, "There is nothing else to put in the basement—you cannot put a class room down there."

We have condemned basement bakeries and kitchens; cannot we do the same with basement laboratories?

LOUISE T. MONTGOMERY.

BOOKS AND LITERATURE

Any book or periodical mentioned in this department may be obtained through the JOURNAL OF HOME ECONOMICS if the Journal price is listed.

Home and Community Hygiene. By JEAN BROADHURST. Philadelphia: J. B. Lippincott Company 1918, pp. 428. $2.00. By mail of the Journal, $2.15.

The developments in the public health movement are dependent upon progress in education. The establishment of a deeper understanding of the purposes and methods of securing personal and public health carries with it the opportunity for advancement upon which communal safety depends.

Students of home economics will find a vast amount of information, well arranged and excellently presented in this book by Miss Broadhurst, assistant Professor of Biology, Teachers College, Columbia University. The scope of the subject matter extends from the consideration of bacteria and other microorganisms to health administration. The ordinary problems of sanitation are supplemented by modern discussions of hygiene as applied to institutions such as homes, schools, and industry. The underlying bases for the prevention of disease are reinforced by a careful exposition of the methods of infant welfare, the problems of middle age, tuberculosis, mental and military hygiene.

The simplicity of the volume commends it, not merely to nurses, teachers, and mothers, to whom the book is dedicated, but to all who are interested in the methods of teaching the fundamental principles of personal hygiene and public sanitation, together with their ramifications in social and economic fields.

The presentation of a few problems at the end of each chapter adds distinctly to the pedagogical value of the book, which is also enhanced by a glossary and a few selected references constituting the appendix.

Paper, type, and illustrations combine to add to the readability of the volume and to insure its popularity. The author has been successful in creating a textbook giving the gist of the health conservation movement, without sacrificing force or clarity through abuse of technical terms. Simplicity and accuracy, with brevity and lucidity, unite in making this authoritative manual most valuable for general use by those seeking to impart or absorb a general understanding of the relation of individuals or environment to the entire public health problem.

IRA S. WILE, M.D.

Dietetics for Nurses. By FAIRFAX T. PROUDFIT. New York: The Macmillan Company, 1918, pp. 444. $2.25. By mail of the Journal, $2.40.

Many teachers of dietetics have been unable to place in the hands of their pupil nurses a book adequate to their needs. Miss Proudfit out of her practical experience in Memphis hospitals, has written a textbook that comes very close to that need.

If, however, the nurses come to the book with no previous knowledge of chemistry, bacteriology, or foods, they will find the first section somewhat difficult to understand. The subject matter is good, drawn from authentic sources, and well presented. Recipes with total calories (but not protein calories) sample menus, and special diets that will please the nurse are run through the pages. The tables are valuable and for the most part cover the ground. In the one showing the chemical combinations and sources, con-

fusion will arise from so grouping the mineral salts as to make it appear as though nitrogen and phosphorus were the only ones, and as though iron, calcium, and the others belonged to another class.

The book is divided into three sections: 1. Food and its significance—"a comprehensive study of the sources of food, its composition and nutritive value." 2. The human machine and its relation to food—"the effect of food in the body under normal conditions." 3. Nutrition in disease—"The effect and behavior of food when conditions are not normal."

A chapter on urinalysis is inserted and is a well-advised departure. The matter of care and feeding during motherhood is given adequate space. There is no special distinction between dietetics and nutrition, but those terms have not yet been standardized. Altogether, the nurse really interested will be glad to have this addition to her library.

ALICE CLORINDA WALTON.

Lessons in Cookery: Food Economy. By FRANCES ELIZABETH STEWART. Chicago and New York: Rand McNally & Co., 1918, pp. 250. $1.25. By mail of the Journal, $1.35.

This book is a distinctly original contribution to the growing list of home economics publications. It has undoubted value when considered as a cook book containing timely recipes and full suggestions for methods of combining ingredients, though these are so fully stated as to be almost confusing at times by their very detail. The summaries of the food principles and their functions in Part I, of the various methods of canning and preserving in Part II, of the wheat flour substitutes and of principles of marketing and budgeting in the Appendix save the use of a number of books or pamphlets.

Though, from her several years of experience in the teaching of home economics to high school girls, the author has had ample opportunity to try out various methods of teaching and to decide upon the one best suited to the needs of her students, the book is less successful as a laboratory manual for high school students; yet, according to the preface, the book is primarily intended for this purpose.

The scheme of organization is not clear, though economy is, of course, the keynote of the entire volume. Presumably the well balanced meal is the "dietetic principle" involved in Part III, though by what standards a meal is to be judged as to its completeness is gained only by inference. It is suggested that the student calculate the total caloric value and protein caloric value in other recipes though no data for, or method of, such calculation is given. What purpose is served by the menus which are found at the head of each chapter is not explained.

It is stated also that the teacher will have an opportunity to develop the principles of cookery involved in the preparation of the typical food stuffs, but it would seem almost inevitable that these principles would be obscured by their almost constant use in combinations in dishes rather than as a unit by themselves.

Again reasons and principles involved in processes are not developed. It may be argued that this is a laboratory manual and that such material would be dealt with in supplementary discussion periods; but modern educational methods are opposed to the complete separation of theory and practice. The laboratory work should be for the purpose of illustrating the principles learned, and it would seem wise at least to allude to such principles in the text. Particularly would this be true if, as it is stated, the book is intended not only for students but also for housekeepers who have not the students' opportunity for supplementing the recipes.

It is also stated that "little, if any, preliminary training in general science or cookery" is presupposed. In that case much of the work would be beyond the grasp of freshman high school students or of the average housewife, without considerable supplementing. Highly technical terms are used in some places which it is doubtful if even the senior high school girl should be

expected to know, such as "proteoses," "food hormones," "nitrogen equilibrium," "alkaline ash."

As a compilation of facts and recipes the book has merit, but as a laboratory manual of home economics for high school girls it does not meet the requirements of modern educational ideals.

JOSEPHINE A. MARSHALL,
Teachers College, New York City.

Diet and Health with Key to the Calories. By LULU HUNT PETERS, A.B., M.D. Chicago: The Reilly and Britton Co., 1918, pp. 105. $1.00. By mail of the Journal, $1.10.

Through a very clever combination of witty paragraphs and amusing marginal drawings, the author and her "small nephew" (the illustrator) entice even the disinterested reader to follow their lead through nonsense to reason. After the "Preliminary Bout" there follow definitions and lists of 100-calorie portions of foods, and suggestions in regard to proper sleep and exercise.

The object of the book is to induce each person to first find out what his weight should be, and how many calories and what kind of food he requires; then, by choosing that diet and taking the proper sleep and exercise, to attain the desired result.

The book is a tonic rather than a text or reference, and should serve well the purpose of interesting those who either know nothing about proper diet, or refuse to follow the correct diet for themselves. It is not often that one finds scientific facts under such an attractive camouflage.

KETURAH E. BALDWIN.

Yarn and Cloth Making: an Economic Study. By MARY LOIS KISSELL. New York: The Macmillan Company, 1918, pp. 252. $1.60. By mail of the Journal, $1.70.

The author has compiled an interesting analysis of the progress of invention affecting yarn and cloth making. Both subjects are presented in a consecutive study from the simplest methods to those of the present time.

The book consists of organized data and facts arranged in outline form preceded by descriptive matter to which cross reference is made. Each type is developed according to "Distinctive Characteristics," "Outline," and "Economic Gain." It is well illustrated and supplemented with a detailed bibliography of reference and illustrative material.

The problems are practically solved, leaving but little to be gained through research, hence the advisability of its use as a college or normal school text seems questionable.

However, it will be invaluable for reference material for students of industrial arts and for teachers of industrial history and economics.

According to the introduction the book aims to cope with present conditions but the content fails to fulfill this assertion.

ETHELWYN DODSON,
Iowa State College.

Department Store Merchandise Manuals: Millinery.[1] By CHARLOTTE RANKIN AIKEN. New York: The Ronald Press, 1918, pp. 174. $1.50.

The manual dealing with millinery is, aside from its value for salespeople, unusually good as reference material for high school or college classes in millinery. The chapters dealing with hat straw and straw braid, straw hat making, and felt hats are very clearly written, and deal with these subjects in an interesting and practical way. From the standpoint of selection, the chapters on trimmings and on choosing hats which are well designed, well proportioned, and becoming are very good. These chapters present the questions squarely and deal with them logically. Although written mainly for salesgirls, this book is interesting and valuable reading for students, and should help them to become more intelligent buyers.

MARGARET KINGERY,
Iowa State College, Ames.

[1] Reviews of other manuals appeared in the JOURNAL, May, 1918, and February, 1919.

PAMPHLETS RECEIVED

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Community Buildings as Soldiers' Memorials. Henry E. Jackson. Community Center Circular No. 2, January, 1919.

The Coöperative School. William T. Bawden. Industrial Education Circular No. 2.

Home Education. Ellen C. Lombard. Bulletin, 1919, No. 3.

Issued by the Department of Labor, Children's Bureau:

Advising Children in Their Choice of Occupation and Supervising the Working Child. Children's Year Leaflet No. 10. Bureau Publication No. 53.

The Employment-Certificate System. Children's Year Leaflet No. 12. Bureau Publication No. 56.

Rural Children in Selected Counties of North Carolina. Frances Sage Bradley, M.D., and Margaretta A. Williamson. Rural Child Welfare Series No. 2, Bureau Publication No. 33.

Stay in School! A Message to the Boys and Girls of America. (Leaflet.)

The Visiting Teacher. Children's Year Leaflet No. 11, Bureau Publication No. 55.

Issued by the Federal Board for Vocational Education:

Clothing for the Family. Bulletin No. 23, Home Economics Series No. 1.

Home Economics Education. Bulletin No. 28, Home Economics Series No. 2.

The Training of Teachers of Vocational Agriculture. Bulletin No. 27, Agricultural Series No. 5.

Issued by the Savings Division, War Loan Organization, Treasury Department:

Ten Lessons in Thrift. Prepared with the coöperation of the Social and Industrial Conditions Department of the General Federation of Women's Clubs.

Issued by the National War Garden Commission:

Food Drying Progress and Importance.

Home Canning and Drying. Victory Edition, 1919.

Victory Gardens Feed the Hungry.

War Gardening and Home Storage of Vegetables. Victory Edition, 1919.

Issued by the publishers listed:

Americanization. Bulletin of the University of Wisconsin, Serial No. 973, General Series No. 757. 10 cents.

Attractive Farmsteads. Agricultural Extension Bulletin No. 65, University of Minnesota.

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Child Life—Its Development and Care. Alice Ravenhill, F. R. S. I., No. 2, Series 1, Utah Agricultural College.

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Dividing Your Day and Your Dollar. Marketing Series, Bulletin 1, State Agricultural and Industrial League, Inc., Portland, Maine.

Facing Clothing Facts. Marketing Series, Bulletin 3, State Agricultural and Industrial League, Inc., Portland, Maine.

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Foods and Nutrition

Bacillus Botulinus. Georgia Spooner Burke, *Jour. Amer. Med. Assn.* 72 (1919), p. 88. A comparison of different methods of canning as to effectiveness in killing spores of B. botulinus. Methods of avoiding contamination. Description of signs of spoilage from B. botulinus. Method of making canned food safe.

Science and War Bread. Editorial of *Jour. Amer. Med. Assn.* 72 (1919), p. 494. A review of some scientific contributions to such problems as control of the consistency, acidity, and bacteriology of bread.

Auto-Intoxication. Walter C. Alvarez, *Jour. Amer. Med. Assn.* 72 (1919), p. 8. Origin of the So-called Auto-Intoxication Symptoms. A criticism of the prevalent views regarding the significance of intestinal toxemia, "auto-intoxication." Alvarez suggests other causes for the symptoms observed and insists that the popular notions concerning auto-intoxication have served as a "cloak for ignorance."

The Dietary Properties of the Potato. E. V. McCollum, N. Simmonds, H. T. Parsons, *Jour. Biol. Chem.*, 36 (1918), p. 197. After a review of the literature on this subject, the authors report the results of their work, using rats as the experimental animal and employing the same method they have used for three years in study of numerous other food stuffs. This method consists in feeding only the one natural food stuff under examination, supplementing it with single and multiple additions of purified food substances (inorganic salts, protein and fat soluble A.) Problem is taken up with relation to value of potato as food for young rats during growing period—other investigators having studied the problem by methods involving only maintenance of nitrogen equilibrium in adults. The metabolic problems involved in these two methods are discussed, together with method of feeding isolated proteins from natural food stuffs.

Influence of High Temperatures and Dilute Alkalies on the Antineuritic Properties of Foods. Amy L. Daniels and N. I. McClurg, *Jour. Biol. Chem.*, 37 (1919), p. 201. Foods used were cabbage and soy and navy beans. Work was planned so as to reproduce actual home cooking conditions as nearly as possible, as to temperature and alkali added. Cabbage and beans cooked in water at 100°C., cooked in water at 120°C., for 15 min. and cooked in boiling water to which a slight excess of alkali (sodium bicarbonate) has been added. They also tested water extract of beans cooked under similar conditions. Authors report results at variance with finding of McCollum and co-workers as regards effect of alkali. Young rats were the experimental animals used. Casein, salt mixture, lard, butter fat, corn starch, and filter paper were used to supplement the diet, so that only limiting factor was the water soluble vitamine.

Miscellaneous

Influenza—Some Interesting though Unsuccessful Attempts to Transmit Influenza Experimentally. *Pub. Health Rept.*, 34: 33, Jan. 10, 1919. Attempts were made to transmit influenza to a large group of volunteers by a wide variety of methods such as by inoculations of cultures from secretions of air passages of patients; by supposedly infected sprays and swabs; by close association with patients coughing and sneezing; and by direct subcutaneous injections of filtered secretions and blood. Not one of the many volunteers developed influenza. The hypothesis is advanced that uncomplicated influenza may be infectious only in the earliest stages of the attack.

The Effect of Industrial Employment on Maternity. "Current Comment" review. *Jour. Amer. Med. Assn.*, 72 (1919), p. 349. Quoted from *Monthly Labor Review*, November 1918. Bureau of Labor Statistics, U. S. Dept. of Labor. The influence of "unpaid domestic labor" as well as industrial occupation, upon capacity for successful maternity, is discussed. The data, however, is held to be not broad enough upon which to base definite conclusions.

The "Health Rate" of a Nation. Editorial, *Jour. Amer. Med. Assn.*, 72 (1919) p. 346. The "Health Rate" is emphasized by Keith in contrast to the birth rate and the death rate. The part played by eugenics and euthenics. The place of the wounded combatant.

Syphilis and Matrimony. Ed. Pisko, *N. Y. Med. Jour.*, Dec. 14, 1918. Discussion of how long after treatment marriage can be safe.

Constipation Treatment of Pneumonia. Ed. E. Cornwall, *N. Y. Med. Jour.*, Dec. 21, 1918. Harm of artificial evacuations. Use of a diet with little residue. Heart stimulation.

Treatment of Chronic Rheumatism by Intravenous Injections of Colloidal Sulphur. Editorial. *N. Y. Med. Jour.*, Dec. 21, 1918. Sulphur is a necessary constituent of body structures and rheumatism is a disease of nutrition.

Preventive Medicine and the Reconstruction of the Race. Fred. Patterson, *N. Y. Med. Jour.*, Dec. 28, 1918. 38% of first selective draft was physically or mentally defective. 75% of 22,000,000 school children show physical defects. Gives a comparison of amount of money expended by Government Industries and Children's Bureau.

Good Posture. J. F. Rogers, *N. Y. Med. Jour.*, Jan. 4, 1919. What is good and bad posture? Causes and cures.

A report on Goitre among Drafted Men from the North-west. Brendel and Helm, *Arch. Int. Med.* Jan. 1919. Definite goitre districts in Oregon, Montana, and probably Nevada. Locality is of greater importance than family tendency. Many cases toxic; tendency to nephritis.

Prevention of Simple Goitre. Second paper. Kimball and Marine. *Arch. Int. Med.* July 15, 1918. Favorable report of administration of two grams sodium iodide in 0.2 g. doses to younger grades of school children of Akron, O.; 0.4 g. doses to older grades. 26% those having a normal goitre and not taking iodide showed definite enlargement; one-third of those showing small goitres, disappeared; one-third of moderate goitres decreased 2 cm.; 0.5% developed iodide rash, which cleared up.

Pituitary Headaches. Pardee, *Arch. Int. Med.*, Feb. 15, 1918. Headache deep in forehead, behind eyes; a tightness, dazed, accentuated by excitement, stooping over, upon ingestion of sugar. Marked fatigue follows; comes during menses. Treatment, pituitary preparations.

Textiles and Clothing

Stabilization of Cotton Reflected in New Goods Prices. *Dry Goods Economist*, Mar., 1919.

Conditions in Linen Field. *Dry Goods Economist*, Mar., 1919.

Clothing Abroad. *Textile World Jour.*, Apr. 5, 1919.

The Wisdom of Blue Serge. Miriam Grose Robins, *Vogue*, Apr. 15, 1919.

Woolen and Worsted Goods. *Fashion Review*, May, 1919.

Fabrics from Nettle and Hemp. *Textile World Jour.*, Mar. 1, 1919.

Suggestions for Selecting Curtains and Over Drapes. *Dry Goods Economist*, Mar. 15, 1919.

What's What in Linens of Today. Hanna Tachan, *Pictorial Review*, April 1919.

Luxury Tax. *Dry Goods Economist*, Apr. 5, 1919.

NEWS FROM THE FIELD

Institution Administration Round Table, Teachers College, Columbia University. A Round Table on Institution Administration arranged by Miss Emma H. Gunther brought together a large number of people interested in different phases of administrative work in institutions in the East. The varied types of work represented were a revelation to many. It was not the usual formal conference; instead short reports were presented, as shown on the program given below. The Round Table afforded the opportunity for the meeting of workers in the various fields and for the exchange of experiences.

A number of colleges offering courses in Institution Management were represented, including Pratt Institute, Simmons College, Cornell University, University of Wisconsin, Battle Creek, and the University of Chicago. A large number of colleges are responding to the demand for training in Institution Management, and are therefore asking for instructors and organizers of such departments.

At the opening meeting, on Friday, April 4, Dr. Bigelow extended a cordial welcome on behalf of Teachers College. In the evening, Professor Nutting brought a message of inspiration to all workers, pointing out that the activities in these institutions lay at the very root of human needs and that all should appreciate and understand the big essential things for which this work was created.

The Friday program was as follows:

Afternoon: Special Types of Administrative Work—Chairman, Helen Hollister, Pratt Institute. Cafeteria Management and Welfare Work for Employees—Mrs. Marion Shafer, National Bank of Commerce, New York City; What the Management of a Woman's Club Involves—Miss Eyre, New Century Club, Philadelphia, and Mildred Barber, Woman's City Club, Boston; Developments in School Lunch Work—Daisy Treen, Director of High School Lunches, Boston; Newer Developments in My Work as a Hospital Dietitian—Charlotte Addison, Post Graduate Hospital, New York City; A Problem in Accounting—Leila Johnson, Instructor in Institution Accounts, Teachers College; Business of a Tea Room—Miss Freese, Colonial Tea Room, New York City; Administration of a Food Shop—Ella Emerson, Food Shop, Women's Educational and Industrial Union, Boston; Dormitory Management—Miss Tyler, Brooks Hall, Barnard College; A Field for Special Dietitians—Lulu Graves, President American Dietetic Association; Problems of Y. W. C. A. Cafeterias—Miss Tanner, Miss Williams, Miss Penrose. A paper summarizing work of the Dietary Survey carried on by the Office of Home Economics, States Relations Service, and the Bureau of Markets of the Department of Agricul ure was offered by title by Elizabeth E. Koch.

Evening: Newer Phases of Institution Work—Chairman, Elizabeth Goodrich, Simmons College. My Work as an Adviser in Cafeteria Management—Elizabeth Bohn, New York City; The Work of a Consultant for Households and Institutions—Mrs. Alice Dresser, Household Consultant, Boston; Supervisory Work for a Dietitian—Lenna Cooper, Supervising Dietitian, Surgeon General's Office, Washington, D. C.; Time and Motion Studies (lecture and lantern slides)—Mrs. Frank Gilbreth, Author of "Scientific Management," Providence, R. I.

On Saturday morning two group conferences were held, one for hospital dietitians, led by Eleanor Wells, the second for those interested in other types of administrative work, the discussion led by Katharine Fisher. Reports were given by directors of school lunch rooms, industrial cafeterias, dormitories, and clubs. The ques-

tion of apprenticeship work and practice fields for the inexperienced graduate brought a very spirited discussion, showing that this is one of the very vital problems confronting those interested in sending competent directors into the field. Many expressed a wish that this Round Table be repeated next year as, through it, workers in these fields might keep in touch with one another and with more recent developments in administrative activities.

Fellowships in Home Economics. The Department of Home Economics of the University of Chicago has a fund for the year 1919–1920 for University fellowships in Home Economics. Two will probably be awarded. Candidates must already have done some graduate work in an institution of high standing. At least part of the time of the fellows is to be spent in research in nutrition or related fields. The work may be counted toward advanced degrees.

Applications with recommendations and statement of training and experience should be sent to the Chairman of the Home Economics Department before July 20.

A Scholarship in Home Economics for juniors, seniors, and graduate students is being offered for the year 1919-1920 by the University of Wisconsin chapter of Omicron Nu. This scholarship pays $200.00 and is open for applications. Award will be based on scholarship, general character, and financial need.

The Division of Home Economics of the University of Minnesota has just enlarged the activities of its Home Management houses to include the care of babies. A baby will live in each house and for the twelve weeks of the spring quarter will be cared for entirely by the students in the houses. The financing of the project is being undertaken for the present by the College Home Economics Association.

The University of Illinois, in addition to the regular summer courses in Home Economics, is holding this summer a school for extension workers, and also a school for the training of Smith-Hughes teachers.

The Ellen H. Richards Memorial Fellowship, offered jointly by the Trustees of the Memorial Fund and the University of Chicago, has been awarded to Elizabeth Wilhelmina Miller. Her academic record is as follows: University of Chicago, Ph.B., 1914; A.M., 1915; Instructor in Home Economics, State Normal College, Mayville, N.D., 1912–13; Instructor in Home Economics, University of Chicago, 1915–18; Associate Professor and Head of Household Science Department, Iowa State College of Agriculture, 1918–19. Miss Miller did editorial work in the Home Economics Section of the Food Administration, Washington, D. C., during the autumn of 1917. She is joint author with Mr. Emery and Mr. Boynton of a Laboratory Manual of Applied Chemistry, and has published the following articles: "The Solution of Antimony from Enameled Cooking Utensils;" "A Home Made Soy Bean Meal for Diabetics" (with Lydia Roberts); "Problems in Cake Making" (with Bernice Allen). Miss Miller is to spend the year 1919–20 in carrying on nutrition studies in the University of Chicago.

Notes. Miss E. Grace McCullough has resigned her position at the Peter Bent Brigham Hospital, Boston, to take effect June 1, 1919. She has the honor of an appointment by the Rockefeller Foundation, China Medical Board, to develop the dietary work at the Peking Medical College and to organize the dietary department of the new hospital now in the course of construction. She will select equipment for the hospital before sailing, August 10, from San Francisco.

Dr. Sophonisba Preston Breckinridge, Assistant Professor of Social Economy in the University of Chicago, who will give courses during the coming Summer Quarter on "Family Expenditures" and "The Child and the State," has accepted an invitation to address the first conference of housewives to be held at the University of Iowa, June 18–22. Dr. Breckinridge is one of the authors of "The Modern Household" as well as of "Truancy and Non-Attendance in the Chicago Schools."